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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/560,512

11/06/2006

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05-483-B

6379

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EXAMINER

HSIEH, PING Y

ART UNIT

PAPER NUMBER

2618

MAIL DATE

DELIVERY MODE

01/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,512

Applicant(s)

YUN, KYOUNG DOK

Examiner

Ping Y. Hsieh

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mimura et al. (U.S. PATENT NO. 6,480,706) in view of Fuerter (U.S. PATENT NO. 6,125,109).

-Regarding claim 1, Mimura et al. disclose an apparatus for processing transmission/reception signals in a base transceiver station (BTS) **(as disclosed in fig. 3 and fig. 4)**, comprising: a coupler connected to an antenna for providing reception signals **(element feeder 2 is coupled to the antenna and the radio receiver as disclosed in fig. 3)**; a duplexer having three terminals for routing the reception signals at a first terminal to a second terminal of the duplexer **(duplexer 31, as disclosed in fig. 4 and further disclosed in col. 5 lines 1-5)**,

terminal (**duplexer 31, as disclosed in fig. 4 and further disclosed in col. 5 lines 26-31**), said coupler being further operative to provide the transmission signals at the first terminal to the antenna (**as disclosed in fig. 3 and fig. 4 and further disclosed in col. 5 lines 5-10**); and a narrow band low-noise amplifying portion connected to the second terminal for amplifying the reception signals from the second terminal (**low-noise amplifier 6 as disclosed in fig. 3 and fig. 4; even though Mimura et al. fail to specifically point out the low-noise amplifier 6 is a narrow band amplifier, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the amplifier to be narrow band. One is motivated as such in order to provide for filtering out unwanted noise signals**). However, Mimura et al. fail to disclose said narrow band low-noise amplifier being operative to suppress out-of-band interference signals such that reception sensitivity is improved.

Fuerter discloses SAW filters, which protect the latter stages of the low noise amplifier, and also protect the base station from out-of-band signal interference as disclosed in abstract.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the low-noise amplifier as disclosed by Mimura et al. to include a SAW filter as disclosed by Fuerter at the latter stage of the amplifier. One is motivated as such in order to provide for protection of the base station from out-of-band signal interference.

-Regarding claim 2, Mimura et al. disclose an apparatus for processing transmission/reception signals in a base transceiver station (BTS) **(as disclosed in fig. 3 and fig. 4)**, comprising: a coupler connected to an antenna for providing reception signals **(element feeder 2 is coupled to the antenna and the radio receiver as disclosed in fig. 3)**; a duplexer having three terminals for routing the reception signals at a first terminal to a second terminal of the duplexer **(duplexer 31, as disclosed in fig. 4 and further disclosed in col. 5 lines 1-5)**, and routing transmission signals at a third terminal of the duplexer to the first terminal **(duplexer 31, as disclosed in fig. 4 and further disclosed in col. 5 lines 26-31)**, said coupler being further operative to provide the transmission signals at the first terminal to the antenna **(as disclosed in fig. 3 and fig. 4 and further disclosed in col. 5 lines 5-10)**; a low-noise amplifier connected to the second terminal for amplifying the reception signals from the second terminal **(low-noise amplifier 6 as disclosed in fig. 3 and fig. 4)**. However, Mimura et al. fail to disclose a surface acoustic wave filter (SAW filter) for suppressing out-of-band interference signals such that reception sensitivity can be improved.

Fuerter discloses SAW filters, which protect the latter stages of the low noise amplifier, and also protect the base station from out-of-band signal interference as disclosed in abstract.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the low-noise amplifier as disclosed by Mimura et al. to include a SAW filter as disclosed by Fuerter at the latter stage of the

amplifier. One is motivated as such in order to provide for protection of the base station from out-of-band signal interference.

-Regarding claim 3, Mimura et al. disclose a transceiver in a BTS (**fig. 3, fig. 4 and fig.14**), comprising an Analog Conversion board Assembly (ACA) (**combiner 14 as disclosed in fig. 14**), an amplifier for amplifying transmission signals (**low-noise amplifier 6 as disclosed in fig. 3 and fig. 4**), and a front-end unit for processing transmission and reception signals (**duplexer 31, as disclosed in fig. 4 and further disclosed in col. 5 lines 1-31**). However, Mimura et al. fails to disclose the transceiver is characterized in that a SAW filter module is inserted between the front-end unit and the ACA for suppressing out-of-band interference signals included in the reception signals.

Fuerter discloses SAW filters, which protect the latter stages of the low noise amplifier, and also protect the base station from out-of-band signal interference as disclosed in abstract.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the low-noise amplifier as disclosed by Mimura et al. to include a SAW filter as disclosed by Fuerter at the latter stage of the amplifier. One is motivated as such in order to provide for protection of the base station from out-of-band signal interference.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dogan (U.S. PATENT NO. 6,650,881).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Y. Hsieh whose telephone number is 571-270-3011. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lana Le can be reached on 571-272-7891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PH



01-17-08

LANA LE
PRIMARY EXAMINER